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Device for Converting the Mains Voltage into a Lower Voltage

Sub B1
The invention relates to a device that transforms mains voltage (generally 230 volts) into low voltage (generally a so-called "safety low voltage") and that consists of a first connector to be plugged into the mains socket, a second connector to be plugged into a consumer and an electronic circuit for the voltage transformation which is between those two connectors.

In conventional, commercially available devices of this kind, the electronic circuit is connected with the second connector via an electric line of considerable length, e.g. two meters. This solution has the disadvantage that in this line significant and often undesirable losses can occur. Moreover, it can happen that the line is overloaded.

The problem underlying the invention is to construct the above described device in a way that losses and line overload can be avoided as far as possible.

According to the invention this problem is solved by a construction where the electronic circuit forms with the second connector, one rigid physical unit where the electric connection between the circuit and the second connector is as short as possible and shows a low electric resistance.

Thus, losses and line overload can be avoided to a large extent, the latter because the cross-section of a short built-in connection can be made large enough more easily than in the case of a long, open connecting cord that would become too bulky.

A further advantage can be seen in the fact that additional signals (via additional electric connection) can be transmitted more easily as in the case of conventional devices, because the device according to the invention lacks the long connecting line of the conventional device.

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According to a further embodiment of the invention an ON/OFF switch for the line voltage is provided at the device. This solution has, compared to an ON/OFF switch provided at a conventional mains transformer the advantage that it can be used more easily when the consumer has to be switched off. An ON/OFF switch provided at a conventional mains transformer very often is not used because the transformation device is located at a location remote from the consumer which is not easily accessible or is not visible. In many cases the consumer is not switched off and thus wastes energy or the mains plug

Sub B2 cont 7 is simply removed from the socket. Out of this reason, the conventional devices very often are not provided with an ON/OFF switch at all.

It is further suggested, that the second connector has at least three poles. This is necessary for the transmission of additional signals.

Additionally, it is suggested that the device is provided with an indicator for the operating state.

Finally, it is suggested that the second connector can be removed from the rest of the unit and can, if necessary, be exchanged by another connector. Thus, it is possible to adapt the device according to the invention to different consumers in a comfortable way.

Further details of the invention result from the attached drawings.

Figures 1 and 2 each show a conventional mains transformer.

Figure 3 illustrates a preferred embodiment of a mains transformer according to the invention.

In all three figures, numeral 1 signifies a mains plug ("first connector") numeral 2 a second connector, that can be plugged into a consumer, numeral 3 a case where a voltage transforming electric circuit is built in, numeral 4 an indicator for the operation state and numeral 5 an ON/OFF switch.